

directs our attention to the fact that the Strassburg observation of this comet, mentioned in these columns last week, was made by Dr. Wirtz.

The following is an abstract from the ephemeris published in No. 4209 of the *Astronomische Nachrichten* (p. 147, October 25) by Dr. M. Ebelt:—

Ephemeris 12h. (M.T. Berlin).

1907	α (true) h. m.	δ (true) ...	Bright- ness
Nov. 4 ...	6 24'3	...	27
8 ...	5 29'7	...	30
12 ...	4 24'4	...	28
16 ...	3 18 3	...	23

The brightness on October 15, magnitude 9.5, is taken as unity.

From the above it will be seen that the comet is apparently travelling rapidly through Taurus, and will pass some 4° to the north of Aldebaran on November 11. On November 15 it will be less than 1° north of the Pleiades.

THE TRANSIT OF MERCURY.—Astronomers who intend to observe the approaching transit of Mercury, which will take place on November 14 in accordance with the times communicated by Dr. Downing to last week's NATURE, will find many interesting notes and suggestions in M. Bigourdan's articles in the *Comptes rendus* (Nos. 16 and 17) for October 14 and 21 respectively. In the former article M. Bigourdan discusses the conditions which are necessary for a transit, the results of earlier observations, and a few of the phenomena which it is advisable to observe. For example, he suggests that an attempt to repeat Langley's observation of Mercury before the first contact in 1878 might be made. In the same year Janssen, using a spectroscope, was able to see the planet projected on a bright prominence before contact with the sun's limb, but this is an unlikely observation at the coming transit, because the contacts take place near the north pole of the sun, where prominences are fewer.

In the second article M. Bigourdan deals with other points of interest, such as the exact measurement of the distances between the edge of the planet and the sun's limbs in order to determine more exactly the times of the contacts, the form of Mercury's disc as seen on the sun, and the possible observation of satellites, which, if they existed, might be seen projected on the bright solar disc; the determination of the planet's diameter and the effects of different apertures in such observations are also discussed. As Mercury will be seen on the sun's disc at midday in Europe, its exact position on the disc may be determined with meridian instruments. M. Bigourdan then discusses the previous observations of both bright and dark rings surrounding the disc of Mercury, and suggests that a spectroscopic examination might reveal special absorption lines, the existence of which would prove the reality of the annuli, and hence the existence of an atmosphere belonging to the planet. Observations of bright points and spots on the planet's disc have been frequently reported during previous transits, but the real existence of such phenomena still requires further confirmation. M. Bigourdan's second paper concludes with a discussion of the methods of observation and the class of instruments it is advisable to employ.

CHANGES ON SATURN'S RINGS.—A telegram, dated October 28, transmitted by Prof. Pickering to the Kiel Centralstelle, announces that Prof. Campbell observed prominent bright knots, visible during the past week, in Saturn's rings. The knots were symmetrically placed, two being to the east and two to the west (Kiel Circular, No. 101, October 28).

A BRIGHT METEOR.—Mr. Arthur Mee reports that a magnificent meteor was seen by observers at Cardiff and Newport on the evening of October 31. It appeared at exactly 10 o'clock, and fell leisurely from γ Cygni to a point just west of Vega. The head "opened out like a rocket," leaving a train that remained visible for several seconds. Those who saw it are not quite agreed as to the colour of the head, but all testify to its great brilliancy, though the night was by no means a dark one.

THE NEW MUNICIPAL TECHNICAL INSTITUTE, BELFAST.

THE formal opening of the new Municipal Technical Institute, Belfast, on October 30, by the Lord Lieutenant of Ireland (the Earl of Aberdeen), may be said to close the first epoch in the history of technical education in that city, and, indeed, in the whole of Ireland. When it is remembered that the Agriculture and Technical Instruction (Ireland) Act became law so recently as 1899, the progress already made is most noteworthy. Within that brief period the annual enrolment of students has risen to 5000, and these are now housed in a building which in beauty of architecture and excellence of equipment may challenge comparison with anything of a similar nature in the United Kingdom.

In the year 1900 the Corporation of Belfast decided to put the Act in force, and appointed a strong committee to carry on the work. The committee chose as its chairman Alderman Sir James Henderson. A happier selection or one more fruitful of good results it is difficult to imagine. A former Dublin University man, a member of the Irish bar, a past Lord Mayor of the City, and the managing director of an old and influential newspaper (the *Belfast News-Letter*), Sir James was admirably fitted to take up the duties of pioneer of technical education in his native city and province. Operations on the site were commenced in February, 1902, but, owing to the peculiar nature of the subsoil, great care was requisite in the formation of a suitable foundation. The site itself is 240 feet by 205 feet in size, and into this area were driven 2756 piles, each 40 feet in length. The heads of these piles were connected to longitudinal timbers, and the whole bonded together in concrete. The formal laying of the foundation-stone was performed on November 24, 1902, by the Earl of Dudley, at that time Lord Lieutenant of Ireland.

A general idea of the external architectural design of the building will be readily grasped from the accompanying reproduction from a photograph; and it will be sufficient to state here that the height of the top of the surmounting balustrade above the pavement is 85 feet; to the top of the domed towers the height is 135 feet. Internally, the building surrounds two courtyards, these courtyards being lined with white glazed bricks and roofed in with glass over the ground floor. The corridors are carried round these areas, and are spacious and well lighted. The floors throughout are of steel and concrete, finished in the laboratories and class-rooms with solid wood blocks, and in the corridors and lavatories with marble terrazzo. Ample gas and water supplies are laid on everywhere, and the building is lighted throughout by electricity. Heating and ventilation are provided by the "Plenum" system. The air, after being washed and screened, enters the heating chamber, where it is passed over tempering coils, and is finally driven throughout the building by a large pair of "Ulster" centrifugal fans. The capacity of these fans is 140,000 cubic feet of air per minute. Arrangements are also made for driving these fans by electricity when heat is not required.

Coming to the question of departmental arrangement, the general idea has been to group together the work of each department in one suite of rooms. The subjects taught are grouped into departments as follows:—mathematics, mechanical engineering, naval architecture, physics and electrical engineering, building trades, textiles, pure and applied chemistry, miscellaneous industries, natural science, commerce, domestic economy, and art.

The department of mechanical engineering includes a total area of 13,000 square feet. On one floor are the lecture rooms, drawing rooms, a photo-printing room, and a mechanical laboratory in which fifty students can work at the same time. The engineering laboratory, workshops, and boiler house are on another floor. The mechanical laboratory is fitted with a large range of appliances of small type all of the newest description. The central idea in providing the equipment has been to keep the application of mechanics to engineering well to the front. A small hydraulics section is attached to this laboratory. The floor of the engineering laboratory is double, and in the intervening space are stored all shafts,

belts, pipes, and also the arrangements not directly required for experimental work, thus leaving the floor clear from obstruction. Beneath the lower floor a tank of ten thousand gallons capacity has been built. A wide range of machinery has been installed. The department also comprises a machine shop and a pattern shop.

In the lecture rooms and laboratories of the department of physics and electrical engineering the machinery is of the latest type. Everything has been provided for giving a complete training, theoretical and practical, to the students.

As is to be expected in a city like Belfast, particular attention has been paid to the equipment of the department of textile manufactures, and the result has been to make the new institute almost unique in this respect. Particular emphasis has naturally been laid on the various

facts and statistical data, and a historical retrospect of technical instruction in Belfast, whilst the book is finely illustrated with internal and external views of the institute. The book is to be sold at 1s., or by post 1s. 3d. Copies can be obtained on application to the institute.

LONDON DAY TRAINING COLLEGE FOR TEACHERS.

IN June, 1901, in response to urgent representations from the School Board for London and other important bodies, the late Technical Education Board of the London County Council secured the adoption of a scheme under which the Council undertook to provide and maintain a day training college for men and women



The Municipal Technical Institute, Belfast.

flax products, and in this connection a very complete range of machines has been installed.

It is unnecessary to examine in detail the equipment of the remaining departments. In every case the expenditure has been equally generous, and the results equally satisfactory. Special mention may be made of the art school, which occupies the entire top storey, and now ranks as one of the best schools in the kingdom. The chemical laboratory is the largest room in the institute, and has been furnished on a complete scale.

Belfast may well be proud of its new institute. Facilities are now provided for the carrying on of the work of technical education such as cannot fail in the immediate future to have an important and beneficial influence on its trade and industries.

In connection with the opening ceremony, a "Souvenir" book has been issued. This contains a number of portraits, views of the institute, a chronological table, salient

teachers in close connection with the newly re-constructed University of London, and a chair of education in the University to be held by the principal of the college.

Work was commenced in October, 1902, under the direction of Prof. John Adams, and has been continued in various temporary premises until the present term, when the college entered into possession of the southern half of the fine block of buildings designed by the Council's architect (Mr. W. E. Riley) to fill a site recently cleared at the Holborn end of Southampton Row. (The northern half of this block will, when finished, be occupied by the L.C.C. Central School of Arts and Crafts.) The celebration of the entrance of the college into its permanent home was the motive of an interesting ceremony conducted by the chairman of the Council (Mr. Percy Harris) on Saturday last, when Lord Rosebery, as Chancellor of the University, formally declared the building open.

The majority of the students of the college are "recog-